



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/645,555	08/22/2003	Ali Sazegari	P2807-828	8696
21839 7590 11/30/2007 BUCHANAN, INGERSOLL & ROONEY PC POST OFFICE BOX 1404 ALEXANDRIA, VA 22313-1404			EXAMINER NGO, CHUONG D	
			ART UNIT 2193	PAPER NUMBER
			NOTIFICATION DATE 11/30/2007	DELIVERY MODE ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

ADIPFDD@bipc.com
debra.hawkins@bipc.com

Office Action Summary

Application No:

10/645,555

Applicant(s)

SAZEGARI ET AL.

Examiner

Chuong D. Ngo

Art Unit

2193

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 September 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,4-9,16,18,19 and 21-28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,4-9,16,18,19 and 21-28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 August 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application
- ☐ Other: _____

DETAILED ACTION

1. Claims 1,4 and 24-27 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

As per claim 1, the recitation:

“evaluating the polynomial for the determined interval with said input data value;
revising said data value in accordance with the result of said evaluation to thereby transform said media signal”, lines 14-17, is indefinite, according to the specification, “evaluating the polynomial for the determined interval with said input data value” is “revising said data value”.

2. Claims 1,4-9,16, and 21-28 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claims 1,4-9,16 and 24-28 are directed to a computer related inventions that merely perform calculation and manipulation of data. In order for such a claimed invention to be statutory, the claimed invention must accomplish a practical application. That is the claimed invention must transform an article or physical object to a different state or thing, or produce a useful, concrete and tangible result. State Street, 149 F.3d at 1373-74, 47 USPQ2d at 1601-02. Also see “Interim Guidelines for Examination of Patent Applications for Patent Subject Matter Eligibility”, OG Notices: 22 November 2005. It is clear from claims 1,4-9,10 and 21-28 that the claims merely involves calculations and manipulations of data in performing calculations.

Art Unit: 2193

The inputs are numbers and the outputs are also numbers. The claimed invention does not result in a physical transformation. Further, the result of the invention is merely numerical values without a practical application recited in the claims that makes the result useful, concrete and tangible. The mere recitation in the claims that the input and output are input and output value for a media signal does not necessarily constitute any practical application for the invention. The result produced by the claimed invention is clearly a mere value that approximates a mathematical function of an input value. Therefore, the claimed invention is directed to non-statutory subject matter as the claims fail to accomplish a practical application.

3. Claims 1,4,24 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Simanapalli et al. (6,002,726) in view of Noetzel (5,068,816) and further in view of Cho (6,931,426).

Simanapalli et al. discloses in col. 4, lines 35-45 a Chebyshev minimax polynomial approximation of a power function x^{-1} but does not specifically disclose how to perform a polynomial calculation. Noetzel disclose in figure 1 a polynomial calculation in a piecewise manner by storing sets of coefficients for a plurality of intervals in memory (9,11,13,15), and in response to receipt of an input data value (5), retrieving the stored coefficients for a corresponding interval and evaluating (46) the polynomial with the input data value to generate an output value (44) as claimed. It would have been obvious to person of ordinary skill in the art to perform the Chebyshev minimax polynomial approximation of Simanapalli et al. by the calculation as taught by Noetzel in order to quickly evaluate a function (see col.2, lines 47-50). It is further noted that the combination of Simanapalli et al and Noetzel does not discloses the

Art Unit: 2193

length of each interval being individually defined as recited in the claims. However, Cho discloses in figure 3 an individual determination for each interval of an input range so that an approximation of a function over an interval has an error less than a predetermined threshold (E) for all of the intervals. Thus, it would have been obvious to a person of ordinary skill in the art to individually determine the length of each interval as taught by Cho in the combined references of Simanapalli et al and Noetzel in order to reduce approximation error while keeping the size of the memory to a minimum (see Cho, Col 1, line 46-54). Further, the recitations in claims 1, 24 and 25 that the input and output data values are for a display or audio signals would have been an obvious fields of use or application to person of ordinary skill in art.

4. Claims 5,6,8,16,21 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combined references of Simanapalli et al. (6,002,726), Noetzel (5,068,816), and Cho (6,931,426) as applied to claims 1-4 above, and further in view of Budge (2003/0195907).

It is noted that the combination of Simanapalli et al., Noetzel and Cho does not specifically disclose a polynomial calculation in a vector processor as claimed. However, Budge discloses in paragraph [0043], lines 5-14, that polynomial calculation is a good fit for vector (SIMD) processor. It would have been obvious to a person of ordinary skill in the art to implement the polynomial calculation of the combination of references by a vector processor as suggested by Budge in order increase the speed of processing.

5. The indicated allowability of claims 18 and 19 is withdrawn in view of the newly discovered reference(s) to Betrisey et al. (6,360,023) and Hurley (5,235,410). Rejections based on the newly cited reference(s) follow.

Claims 18 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Betrisey et al. (6,360,023) in view of Hurley (5,235,410).

Betrisey et al. disclose in figure 3 a method for processing an image for display in a computer system including receiving an input display value for a pixel of the image in a first color space (foreground color, background color), generating a corrected display value in a second color space corresponding to the gamma of a display device in accordance with said input display value (311,3123); processing said corrected display value by combining the corrected display value with another display value in said second color space to generate a blended display value for said pixel in said second color space to produce a processed display value for said pixel (312); and converting said processed display value to said first color space said processed display value by an inverse function of the generating a corrected display value in a second color space (314). It is noted that Betrisey et al. does not disclose the generating a corrected display value by a second-order polynomial that approximates a power function corresponding to the gamma of a display device, and the converting the processed display value to said first color space by evaluating a polynomial that is the inverse of said second-order polynomial. However, Hurley discloses a generation of a corrected display value by a second-order polynomial that approximates a power function corresponding to the gamma correction (see figure 6). It would have been obvious to a person of ordinary skill in the art to approximate a power function corresponding to the gamma correction and its inverse in Betrisey et al. by a second-order

Art Unit: 2193

polynomial and the inverse of the second-order polynomial, respectively, as suggested by Hurley, in order to perform the gamma correction and its inverse in a simple and effective manner (see Hurley, col. 3, lines 1-3).

6. Applicant's arguments filed 01/08/2007 have been fully considered but they are not persuasive.

Regarding the rejection under 35 USC 101, it is respectfully submitted that the mere recitation in the claims that the input and output are input and output values for a media signal does not necessarily constitute or warrant a practical application that produce a real world result for the invention. The result produced by the invention as recited in the claim is still a value that approximates a mathematical function of an input value. Therefore, the claimed invention is directed to non-statutory subject matter as the claims fail to accomplish a practical application.

Regarding to the rejection under 35 USC 103, it is respectfully submitted that the teaching of Cho does not destroy the technique disclosed by Noetzel, but provide an improvement to the teaching of Noetzel. As set forth in the rejection, Cho clearly provides an obvious modification to the combined references of Simanapalli et al and Noetzel in order to reduce approximation error while keeping the size of the memory to a minimum.

7. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Art Unit: 2193

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chuong D. Ngo whose telephone number is (571) 272-3731. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Meng-Ai An can be reached on (571) 272-3756. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Chuong D Ngo/
Primary Examiner
Art Unit 2193

11/23/2007